
NOVA SCOTIA
SCHOOL GARDEN
RESOURCE GUIDE



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School gardens have become increasingly popular in recent years as a valuable educational tool for a variety of subject areas. Teachers tell us that lessons learned in the garden can have long-lasting effects on student well-being.

A garden can provide active engagement of students, while accommodating a wide variety of learning styles in a hands-on, healthy, outdoor setting.

In the garden students can:

- engage in school curriculum while having fun
- develop environmental awareness
- practice teamwork with each other, teachers, school staff, and volunteers
- be physically active in a non-traditional physical education setting
- make the connection between food and agriculture
- develop a taste for natural and healthy foods
- foster responsibility by caring for living things

Gardens can be as simple as one raised bed or as complex as a big garden plot to supply vegetables for the school lunch program. They can start small and stay small, or increase in complexity as interest and participation grows.

There are many sources of information on the benefits of school gardens as well as the technical aspects of gardening. This resource guide focuses on how to start a school garden and on curriculum links so teachers can integrate the garden into their lessons. The guide also includes information on resources available to schools in Nova Scotia, and references to gardening information and contacts.

The Agricultural Education office of the Nova Scotia Department of Agriculture has many other resources on agriculture in our province.

Visit <http://gov.ns.ca/agri> or contact:

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So you are interested in a school garden. Congratulations!

You are not alone – there is growing recognition worldwide for the benefits of school gardens. Even the Food and Agriculture Organization of the United Nations has prepared a school garden manual <http://www.fao.org/docrep/009/a0218e/a0218e00.HTM>

But how should you get started? The information in this guide is organized following a suggested action plan for initiating a school garden.

Recommendations will need to be adapted to suit your school.

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Form a Garden Committee

It is necessary to build support within the school for the garden to be successful. To start, support for the concept from the school principal is crucial. As well, buy in from teachers, caretakers, parents and others is helpful. An experienced gardener is a great asset; check with the Master Gardeners Association (see Appendix B). Call a meeting of all those interested. From this group, a garden committee can be formed with a volunteer coordinator. Remember that not everyone will be enthusiastic from the start,

but as long as there is representation from each group within the school community, the committee can get to work.

Garden Committee Checklist

- ✓ principal
- ✓ teachers (at least 2)
- ✓ EAs
- ✓ parents
- ✓ students
- ✓ community members

Decide on the Objectives

The first step of the committee is to define the objectives and scope of the garden. What do you want to accomplish and for whom? Examples of questions to consider include: will every child in the school participate or only one class; will vegetables be grown for the

lunch program or to demonstrate the wide variety available; do you want to attract nature, create craft supplies; how many volunteers will help with the labour. This will help determine the scale of the project that is desirable and feasible.

Recruit Volunteers

Once the garden committee has established the purpose and scale of the garden, you may want to invite key community members to help. Look for those with gardening skills, knowledge and/or equipment and resources to help out. The more community support you have, the more can be accomplished. See Appendix B for some ideas on where to look for human resources. A major consideration is who will tend to garden needs over the summer months. One school garden

coordinator, who had a garden near the soccer pitch at the school, enlisted the help of soccer moms as volunteer weeders during practice. Be creative!



Find Funding

Gardens can cost as little, or as much as you are willing to spend, depending on size and complexity. In an Evergreen Foundation survey of Canadian schools, 65% of school gardens were reported to cost less than \$2000 for start-up and 24% cost less than \$500. See Appendix B for some potential sources of funding. You can also seek donations from

your community. For example, the local building or garden supply company may provide a discount for all garden supplies, while community members could contribute seeds and transplants. Small annual donations from a variety of sources help to ensure sustainability of the garden.

Decide on Size and Type of Garden

Consider the objectives defined by the garden committee as well as the number of volunteers willing to provide labour. What size and type of garden could accomplish the goals with the resources available? One 1 x 3 m raised bed in a wooden frame can provide plenty of produce for tasting, is easy to tend, is not as prone to being walked on by 2 and 4 legged animals and can be placed on top of any type

of soil or surface. A garden plot provides more space, may be less expensive, can be cultivated with a roto-tiller and provides the full experience of being in a vegetable garden. If a garden plot is chosen, decide on the size, shape and configuration; also decide on rows or raised beds. Raised beds do require more watering than in-ground gardens.

Choose Garden Location

Selecting a location for the garden is an important decision. The location influences the microclimate and community environment that your vegetables will be living in.

The garden should have lots of sunshine for most of the day. A minimum of six hours of direct sunlight is needed for most vegetables. Visit the site several times from May to October and record the hours of direct sunshine. If you have less than six hours of sunshine, you will need to choose cool season plants like spinach and radishes. The sun loving tomatoes and beans will not produce well there! If the garden will be on a slope, it should be south facing to maximize exposure.

Trees compete for the sun, water and nutrients that a garden needs. Some trees actually produce toxins to discourage the growth of other plants around them, so choose a site as far away from trees as possible! Weeds also compete for resources. In rural areas, ensure that the area around the garden can be mowed, thus decreasing the number of weed seeds that blow into the garden.

The ideal area should be fairly flat, to avoid erosion problems, but the site should be well drained so that a heavy rain will not cause puddles around the peas! A slight south facing slope is ideal.

The location of the garden in the community can be an important consideration for reasons which include visibility and public relations, aesthetic value and limiting the risk of vandalism. Vandals will be less likely to strike if the garden is located within sight of neighboring houses and streets. Inviting the community to celebrate the garden may work better than building a fence to keep vandals out!

Animal vandals are another consideration. Is the proposed location visited by dogs and cats? Do raccoons and rabbits live in the area? In rural areas, deer can be a major competitor. Locating the garden in a well lit area may help deter some animal visitors.

Wind can cause major damage to plants, both as seedlings and as tall mature plants. Buildings and hedges provide good shelter from wind. If the preferred location is in a windy spot, it may be necessary to provide shelter from wind using a windbreak, such as a snow fence or planting more robust plants on the windward side. Consider growing highbush blueberries, asparagus, zucchini or pumpkin plants along a trellis.

The soil type is important too, but it can be improved with the addition of organic matter, such as compost. A loam soil type with soil particle size somewhere between clay and sand

is the best. Rocks can be picked from the site before planting. This is especially important for carrots or other root crops.

The size of the plot is determined by the amount of effort needed to look after the garden. It is better to start small and grow with a positive experience! A well-tended 1 m by 3 m garden will provide more produce and enjoyment than an unmanageable large one. The best size for the garden will become clear as you work through the process, but do consider if the site has room for expansion when everyone wants to get involved with it next year!

Garden Location Checklist

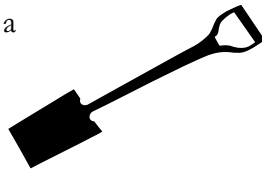
- ✓ six hours full sun
- ✓ gentle south slope or level
- ✓ away from trees and weeds
- ✓ visible to community
- ✓ protected from animal pests
- ✓ near a water supply
- ✓ protected from wind



Acquire Tools and infrastructure

The size of the garden will determine the tools needed. If groups of children will be working at the same time, there should be enough tools to keep everyone occupied. A variety of tool sizes is needed to suit different ages.

Consider starting out with a modest collection of hand tools.



- A spade is a garden shovel with a square vertical blade used to dig up a new garden area, turn over the sods, make raised beds and dig holes for transplants or potatoes.
- A hand trowel is a small digging tool and is very helpful in cultivating soil for smaller planting jobs and weeding, especially deep-rooted weeds that might grow among plants. For young children, the hand trowel is easier to manage than a spade.
- A garden rake is also called a level head rake. It is different than the rake used for raking leaves in the fall. It is used to remove rocks and help smooth the soil before planting, make raised beds and tamp down the soil after planting.
- A long-handled hoe and hand cultivators are used to dig out weeds or turn over newly germinating ones from the garden.
- A garden fork, sometimes called a spading fork, is useful to shake out sods and loosen the soil. It will also come in handy when digging up the root vegetables in the fall.
- A watering hose from the nearest tap, or a bucket and watering can will be needed during dry spells. Think about collecting rain water for the garden.
- A wheelbarrow or garden cart is a good labour and time saving investment for the garden. Think about the size of the

wheelbarrow and the physical abilities of the students who will be using it to do work. There are many wheelbarrow/garden cart designs to choose from.

Think about where the tools and equipment will be stored. Convenience will make tending the garden quicker and easier and will allow classes to accomplish some work in a limited time frame. If the tools are kept in a locked area, decide where the key will be kept and who will have access.

Establish a routine with everyone who uses the tools. Since tools are expensive, they should be cared for by cleaning and storing properly. Children should be taught how to use the tools safely; for example, never lay a rake or hoe down with the tines pointing upwards!

Consider finding a space and building a structure to produce compost for the garden. Talk with the school custodian as they will have the best knowledge of the school property and how these may be accommodated. Indoor composting options are also possible – e.g., Vermiculture with Red Wiggler worms or European nightcrawlers, or fermentation with Bokashi systems are a great way for students to create a soil amendment for their garden from their own food waste. Composting provides a valuable nutrient recycling lesson.

Check out <http://en.wikipedia.org/wiki/Composting>

Remember that it takes time to build the infrastructure desired. Start small, and add sheds and a composter as time and money allow.



Choose Water Source

All plants need a steady supply of water. Occasionally, the Nova Scotia climate provides a reasonable amount of rain throughout the summer, but more often our gardens are soaked one month and parched the next! Since planning on the weather is impossible, it is best to prepare for all scenarios.

- Access to an outdoor tap and hose and/or rain barrels and watering cans is required.
- Transplants and seeds need to be well watered when planted and as they germinate.
- During summer dry spells, a weekly soaking with a sprinkler is preferable to occasional watering with a watering can.
- Raised beds dry out quickly.
- Flat garden plots may become too wet to access.
- Some of your vegetables will survive no matter what amount of water they receive!
- Mulching the garden conserves soil moisture and reduces weed growth.

Examine the Soil

Soil, Not Just “Dirt”

Soils are more than just sand, silt, clay and organic matter. They contain particles of rocks, minerals, air and water and they support a wide variety of living things which can include bacteria, fungi, protozoa, nematodes, arthropods and annelids.

Soils provide a habitat that supports many biological and chemical processes which break down parent materials and organic substances making nutrients available to sustain living things. They hold nutrients made available through these processes, along with things that may be added to the soil such as composts, manures, fertilizers, and even unwanted contaminants. While soils can break down and utilize much of what is added to them, there are many pollutants which can persist for long periods of time.

Soil Contamination

It is important to know the history of the site you select. While a basic soil test will tell you what nutrient requirements and other

amendments may be required to make your garden a success, it will not identify potential contaminants. If your site has a history that may have resulted in contamination or you are unsure and would like to investigate further, you should have an analysis of soil from the proposed garden area completed. Maxxam Analytical Testing Services and AGAT Labs will do environmental testing for soil contaminants (see Appendix B).

Soils can be at risk of contamination because of industrial practices, natural soil chemistry, lead and zinc in old house paint and motor vehicle emissions. While it is not feasible to test for all potential contaminants, soil samples should be analyzed for pH (a measure of acidity), organic matter content and concentrations of lead, arsenic, copper and zinc. To be sure, you can have your soil tested for heavy metals and compare the results with CCME guidelines. Zinc, copper, and arsenic are the most important metals to test for. Soil contaminant tests cost between \$60 – 100.

The CCME (Canadian Council of the Ministers of the Environment www.ccme.ca) soil quality guidelines for land used for agricultural purposes are as follows:

	Arsenic	Copper	Lead	Zinc
Maximum acceptable concentration for agricultural lands (ppm)	12	63	70	200

If you're not sure or you do know that your site is contaminated, there are some recommendations to consider in order to still use the site for gardening.

- You can build raised beds and bring in clean soil from elsewhere. Choose a safe material to build the beds with (like tiles or untreated wood) and line them with a barrier that reduces the migration of heavy metals from existing soil to your garden.
- In highly contaminated environments, replace the top 3-5 cm of soil in raised beds each year. This removes dust that may have settled from surrounding areas.
- Remember that “eating or breathing dirt” is by far the most common way that heavy metals enter the human body. Clean your hands after gardening and wash produce carefully. Avoid weeding on very dry days or use the “chop-and-drop” method where you cut young weeds just above the soil and let the greenery fall to the ground as mulch.
- Since heavy metals tend to accumulate in roots, peeling root vegetables and growing leafy greens or fruits is a good start.
- Last but not least, adding organic matter to your soil reduces the amount of contamination that is taken up by your plants, as does adding wood ash, lime, or egg shells to neutralize the soil's pH. These things also help your Nova Scotian garden grow!

Soil Nutrients

The soil is the essence of the garden, so consider it carefully. If working with the existing soil on school grounds, a soil test should be done before making a final decision on the location of the garden. This is one of the best things to do to ensure a successful garden. The soil analysis results will show what nutrients and soil amendments are needed, or whether one location is more favourable than another.

How to Take a Garden Soil Sample:

Step 1: Take a garden trowel and go down 12 to 15 cm (5 to 6 in) in 6 to 10 different areas of the garden.

Step 2: In a clean bucket or pail, empty the contents of each area. Remove plant debris. After this is done, mix the soil together.

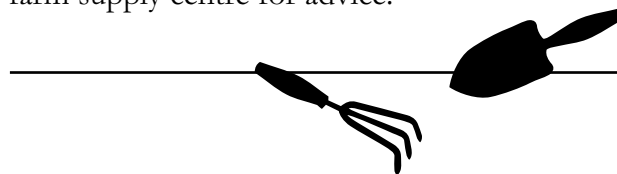
Step 3: From this mixture, take a 500 ml (2 c) sample. This sample will be a good representation of the garden soil.

Step 4: Place the 500 ml (2 c) sample in a freezer bag that can hold the full sample.

The Laboratory Services of the Quality Evaluation Division, Nova Scotia Department of Agriculture, will conduct soil analysis (see Appendix B).

To ensure that you get the proper analysis for your soil, be sure to indicate that you are growing a vegetable garden, or other garden type if applicable.

A factsheet on “Understanding the Soil Test Result” can be found at <http://gov.ns.ca/agri/qe/labserv/> or take the soil test result to your professional garden or farm supply centre for advice.



Prepare the Site

One way to start a garden plot in a grassy area is to remove sod. The sod can be used elsewhere or it can be composted and added back to the soil next year. Turn the soil over (about 20 cm deep) and get rid of the big rocks, and major roots and weeds. If you dig a v-shaped ditch around the outside edge of the garden with the spade, it helps to keep weeds from creeping in. Take a soil sample for nutrient testing and then cover with a thin coat of well-decomposed manure or compost.

If advanced planning is done, a lot of effort can be saved by simply covering the proposed garden area with a sheet of heavy black plastic and leaving it for an entire summer. The next spring, the sods will be gone and you can prepare the garden as above. Silage plastic is available at farm supply stores, or you may be able to get used plastic from a local farmer. Make sure the plastic is well anchored by placing rocks, logs or tires on top of it to prevent it from blowing away in the wind!

Another method to help remove sod for a new garden is to use sheet composting directly over the sod. This is a no-dig method using organic materials to suppress weeds and build high quality soil. This method is described at http://www.ehow.com/how_4424151_build-lasagna-garden.html

A garden can be planted in rows or in beds. If space is not an issue and someone has the equipment and is willing to mechanically till the garden, rows may be the answer.

Beds have the advantage over rows in that a much smaller space is needed. Their slight elevation makes them easier for users who have stability problems. One important thing

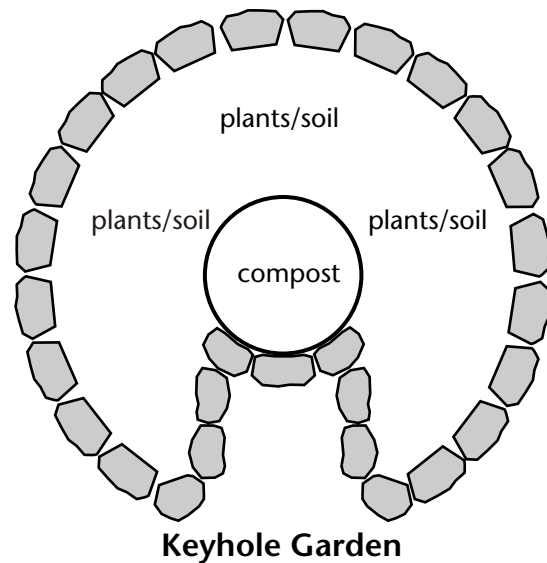
to remember with the size of beds is that students have to be able to reach to the middle of the bed for planting, weeding and harvesting. Most adults can reach in about 0.5 m. If both sides of the beds are to be accessed, they should be no wider than one metre, but you may want them smaller for children. Beds can be raised or kept level with the ground. Raised beds work best in a wetter area, they warm up earlier in the spring and plants are easier to reach. However, they also dry out more quickly, so they may need more watering in a dry year. To make raised beds, soil is raked into piles, and then smoothed off. The beds can be edged with timbers or log sections, or left unframed.

Raised beds within a garden plot can be surrounded by mulched paths. Place overlapping layers of newspaper, at least eight layers thick, on the path and then cover with mulch such as sawdust or wood shavings. Use straw for this purpose if re-cultivating the entire garden area each spring. The paths can be much narrower than the raised beds.

Raised beds within a frame are a good choice if the soil is too rocky or heavy, or if there is only a paved yard at school to work with and the garden needs to be elevated. In this case, make the container first, and then fill with bags of growing medium. The container can be constructed of wooden beams (not pressure treated wood), concrete blocks, or rock about 30 cm or more high. Raised beds provide accessible garden space for students with physical access concerns who rely on the garden frame to help support them during gardening activities.

If you are ambitious, there are many interesting variations on the raised bed – like an African keyhole garden, which combines a permanent central compost basket with a circular raised bed. Be creative!

<http://www.cowfiles.com/african-gardens/keyhole-gardens>



Decide What to Grow

What is more fun than looking at garden catalogues! It's tempting to try growing a large variety of vegetables, but school gardens are faced with a simple dilemma – students will be away for July and August. Pay attention to the “days to maturity” for the cultivars considered. Vegetables need to be chosen that take either a very short or a very long time to mature to allow them to be harvested before and after the summer break.

It may be desired to choose vegetables that can be eaten raw for convenience in the classroom. Try picking a theme for the garden – a pizza garden, a salsa garden or a rainbow garden. There is considerable interest in heirloom vegetables. These are traditional cultivars, which may not offer the disease resistance of newer ones, but some people prefer their flavour, appearance and history.

Don't forget edible flowers like nasturtiums and pansies! Kids will have great fun with the idea of eating them.

Involve the students in the planning, as much as possible – they will feel a true sense of ownership.

With a first garden, it is best to start simple. Schools report good success growing lettuce, tomatoes, cucumbers, pumpkin, carrots, beans and radishes.

Lettuce A good choice with a short time to maturity is Mesclun Mix lettuce, which will have leaves ready for harvest a few weeks after planting. Of course this depends on the weather, but generally speaking Mesclun Mix can be seeded in mid May and should be ready for eating by the end of June. By the beginning of September, any leaf lettuce seeded in early spring will have bolted (gone to seed) and not be tasty anymore. To have lettuce ready in September, it is best to have a volunteer plant it in July.

Tomatoes are a good long season vegetable that can be started indoors by students. Transplants can be bought at nurseries in the spring, but it is much more fun to start from

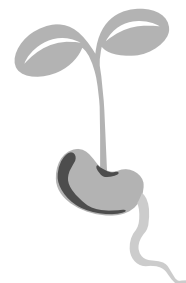
seed. If buying from a nursery, pick plants with short, thick stems and healthy green foliage with no evidence of diseases or insects. If starting seeds indoors, a very brightly lit window or supplemental lighting is needed. Sweet Million is a popular tomato cultivar that does well in Nova Scotia, and there will be lots of small, tasty tomatoes for the students from just a few plants. These plants do best when staked (tied to a pole) or put in tomato cages to keep them from sagging to the ground.

Cucumber plants will spread to occupy a large area, so in a smaller space, look for bush or container cultivars, such as Salad Bush Hybrid. Plant all vine crops, such as cucumbers, close to one end of the garden, and then train the vines to grow outward or along a rail or trellis as they expand in length so they don't cover the rest of the garden.

Pumpkins are a member of the winter squash family. Seed companies have early and late cultivars intended for cooking or for carving. Pumpkins are heavy feeders and drinkers! This means plenty of composted manure needs to be added to the site and be prepared to water deeply during dry spells. Be aware that a pumpkin may draw unwanted attention in the garden in the fall and disappear before students get to enjoy it!

Carrots are a popular garden choice that are relatively pest free. If seeded outdoors in mid-June, they should be ready for harvesting in early September. The carrot rust fly is a problem in some areas and results in carrots with small tunnels through the flesh. If this becomes a problem, choose a cultivar such as Resistaflly or cover the carrot bed with a floating row cover. This is a light polyester fabric designed to form a barrier against insects while letting light and water in. The fabric is light enough to be draped over the plants without support. This is a good non-chemical protection for the plants.

Bush beans germinate quickly and are usually easy to grow. Most years, bush beans should be planted in early July for picking in September. Bush beans will be ready to harvest within a short time frame and are heavy producers, while pole beans produce fewer beans over a longer time. Yellow beans have the advantage of being easy for kids to find among the green foliage.



Pole beans require support and will climb up to 2 m on a trellis or tepee. Pole beans mature later than bush beans and may be a good choice for the school garden for this reason. They make good use of vertical space in a small garden. “Kentucky Wonder” cultivars are available in both yellow and green. “Scarlet Runners” attract hummingbirds to their red flowers — a bonus!

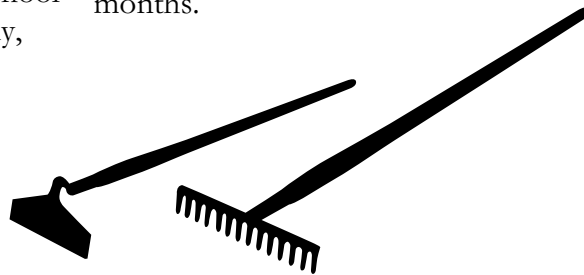
Radishes are the speediest of vegetables. They sprout quickly, grow quickly and are finished before other vegetables are barely started. “Cherry Belle” radish cultivar will grow in 21 days! Some people like to mix carrot seeds half and half with radish seeds and plant them in the row together. This makes it easier to get the carrots spaced further apart and the radishes will be pulled out and eaten before the carrots need room.

Potatoes may not be an easy choice for a school garden because they require considerable tending over the summer, but children generally find them of great interest both to plant and to harvest. Baked potato wedges are a favourite on the lunch menu. As the tubers grow, they need to be protected from the sun, either by hilling, mulching or planting close together in beds. Potatoes are also often attacked by the Colorado Potato beetle, which can consume the whole plant if

left unattended. Control of this insect requires picking them off the plants, covering with a floating row cover, or spraying during July and August. Despite these challenges, you might want to try planting a few potatoes in a variety of colours, including red, purple and yellow.

Some vegetables may not be the best choice for a school garden because they require considerable tending over the summer, or they may be ready for harvest outside of the school calendar. These include the cabbage family, corn and green peas. The cabbage family

(broccoli, cabbage, Brussels sprouts, cauliflower, Chinese cabbage, Bok Choi and others) are often eaten by flea beetles when they are emerging from the ground, or later by cabbage butterfly larvae. Green peas are best planted in May for harvest in July, and are gone by September. Corn is problematic as it takes a great deal of space and is subject to many insect pests. If you do want to grow these, plan to monitor them over the summer months.

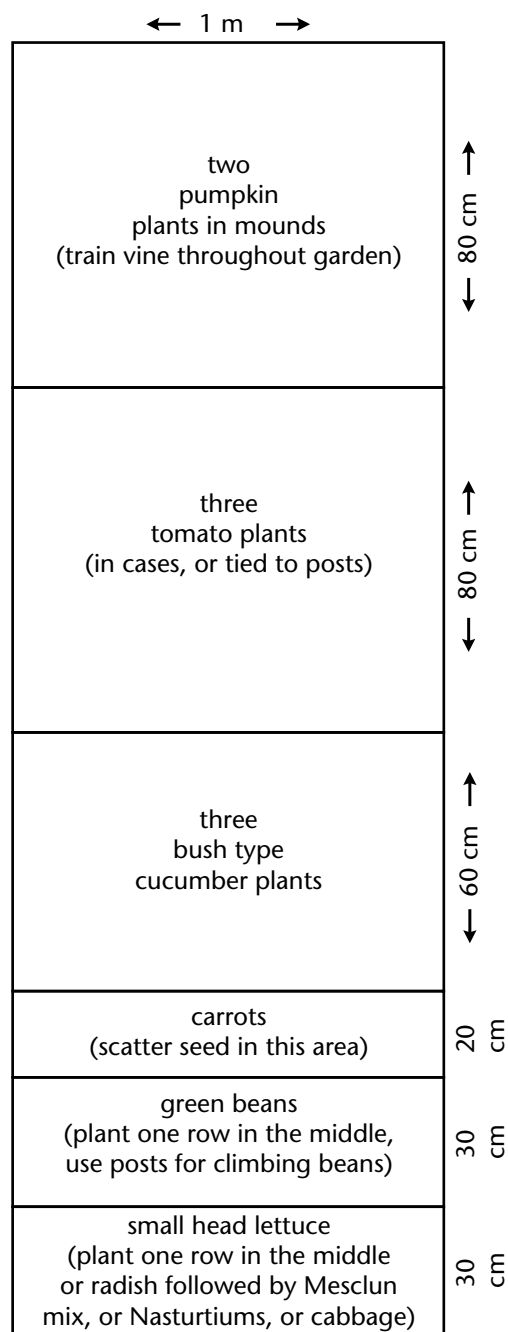


Make a Garden Plan

A sample garden plan for a 1 m by 3 m garden growing pumpkins, tomatoes, bush type cucumbers, carrots, beans and lettuce is shown here. No allowance is made for pathways because it is one metre wide, so can be reached from both sides. The pumpkins, tomatoes and cucumbers would be transplanted into the garden. The carrots, beans and lettuce would be seeded directly.

Space can be maximized by seeding leaf lettuce, like Mesclun Mix, in the tomato and cucumber plots in early spring. The crop will be ready to harvest before the tomatoes and cucumbers go in. Some people like to seed radishes with the carrots, since the radishes will be harvested before the carrots need the extra space.

If the same garden area will be used every year, it is important to practice crop rotation. This technique consists of not growing the same vegetables in the same place in the garden for two consecutive years. Keep your garden plans from past years to help remember where the vegetables were previously planted. Rotation reduces the build-up of disease and garden pests and moves the “heavy feeders” like pumpkin around the plot.



Find Seed and Plant Sources

Seeds are available almost everywhere. However, keep in mind that they need to be from a reputable source. Some stores will put last year's seeds out for sale at a discount. Some plant seeds naturally have a shorter shelf life than others, and if the seeds were not stored properly, the results may be disappointing.

When selecting what to grow, pay close attention to the description. Some cultivars produce smaller plants that are ideal for small gardens or containers. Also look for cultivars that are described as disease resistant, and check out the days to maturity. By growing more than one cultivar, you'll have some insurance if one doesn't perform well. Next year, grow the best performer again, and select another cultivar to try.

Halifax Seed Company, Vesey's Seeds, MacKenzie Seeds and Stokes Seeds are some options for seed sources for Nova Scotia. (See Appendix B for contact information). If purchasing seeds from a local business, it is more likely the seed of cultivars grow well in Nova Scotia. Plants that would normally grow in different parts of the world may not do as well here.

Buying transplants is more expensive than starting them from seed and, in some cases, the head start they give may not be necessary since the garden won't be harvested before September. However, some vegetables are barely able to mature in our short growing

season and so transplants are advised for tomatoes, peppers and eggplant. If buying transplants, they should be purchased from a local grower whenever possible. Sometimes plants in a supermarket or chain store may have traveled long distances and may have been stored in stressful conditions. Transplants can be permanently damaged by lack of sufficient water. Ask where the plants originated.

Transplants can be started indoors for longer growing season plants, especially if there is a bright sunny window or supplemental lighting. These could be planted around mid-May in potting medium. Cut off the top half of 1 or 2 litre milk cartons, and fill the bottom half with moist potting medium. Pat down gently. Plant at least 2 seeds per container, cover with a plastic film, and keep on a sunny windowsill. Other options include peat blocks and paper pots made from recycled newspaper. When the plants emerge, remove the plastic. When the plants are 2 weeks old, thin to 1 plant per pot, and apply a water soluble fertilizer following the instructions on the fertilizer package. When the plants are 7-10 cm tall, or about two weeks before planting, they should be hardened off. Do this by watering sparingly, but not allowing them to wilt, and setting the plants outdoors on mild days. They may be prone to sunburn initially, so partially shade them for the first week, especially from afternoon sun.

Get Into the Garden!

In the spring, add any nutrients as indicated from the soil test results and mechanically till, dig or hoe the top 3 – 4 cm of soil to loosen the surface layer and to blend in the nutrients and organic matter spread the previous fall. Remove any weeds and their roots as well. It is recommended not to work the soil when it is wet since it could form hard clods and become compacted.

Using the garden plan, mark the areas with small pegs and some string, so you can see where each type of vegetable will be seeded or planted.

Once transplants have been hardened off, they can be planted in the outdoor garden. Choose a cloudy day (so that the plants are not burned by the sun) once the risk of frost has passed. Mid-June would probably work, but in colder parts of Nova Scotia, be prepared to cover them in case of possible frost until the end of June. Using your spade or hand trowel, make a hole large enough to contain all the soil and seedling. Carefully rip away the milk carton, and set the plant in the hole. Pack down lightly, and water the plants with a starter fertilizer. Tie tomato plants to a stake, or use a tomato cage.

Seed the Mesclun Mix lettuce directly in the garden around mid-May. Seed the carrots, cucumbers and pumpkins outdoors in mid-June, around the same time the tomatoes are transplanted to the outdoor garden. By then, the Mesclun Mix lettuce should be ready for harvest. The head lettuce and beans should be planted by mid-July.

Generally speaking, the seeds should be planted to a depth of about 3– 4 times the thickness of the seed; however always follow the directions on the seed package. Lettuce and carrots have very small seeds, so it may be easier to scatter them in a row on the surface of the ground, sprinkle some soil over top and then lightly pat down the soil. Take your time with seeding, and try to space the seeds so they won't need much thinning! Seeds, especially carrots, need regular watering to germinate, so be sure to water at seeding time and then again several times a week if there is no rain.

Plants need to be thinned if they are too close together, and are competing for growing space. Remove unwanted plants carefully, and try not to disturb the soil around the remaining plants. This is a good time to remove any unwanted weeds as well.

The following chart, adapted from the Vesey's Planting Chart, is available on Vesey's website. It will give an idea about how long it takes seeds to germinate, planting depth, and distance needed between plants.

Vegetable	Approx. planting depth	Approx. days to appear	Approx. space between plants
Beans	3 cm	6-10	5-10 cm
Carrots	0.5 cm	14-21	2-7 cm
Cucumber	1 cm	7-10	15-30 cm
Lettuce (leaf)	0.5 cm	7-10	2-5 cm
Lettuce (head)	0.5 cm	7-10	30-45 cm
Pumpkin	2 cm	7-12	60-120 cm
Tomato	0.5 cm	8-10	75- 125 cm

Mulch is an organic or inorganic material applied to the soil surface to provide a protective layer. It serves to suppress weed growth and conserve soil moisture and, in some cases, help warm the soil in the spring.

Organic mulches are made up of natural materials like straw, leaves, needles, bark, grass clippings, etc. A layer 5 – 10 cm thick should slow weed growth and will break down over time as it decomposes, providing organic matter to the soil. Since weeds are persistent, remove as many as possible before mulching. Do not use hay for mulch as it contains many seeds and will be a source of weed growth.

An inorganic mulch such as black plastic works well for large spreading plants like pumpkins, tomatoes and cucumbers. A sheet of plastic or landscape fabric can be spread over the planting area. Make sure to cover all the edges

with soil, so it won't blow away. When ready to plant, cut an X in the material, dig a hole and insert the plant. The black plastic warms the soil which is especially good for heat loving plants like tomatoes.

Weeds can be suppressed in pathways by laying landscape fabric or layers of newspaper, and then covering with wood chips. Be sure to use at least 10 layers of newspaper and overlap them well so that weeds cannot come through. Mulched paths have the advantage of showing the children where they can walk; it is important that they not walk on the cultivated beds. They also allow working in the garden even when conditions are wet.

Enjoy the Harvest!

What should you do with the produce?

Use it in the cafeteria, donate to a food bank, host a food event – there are lots of possibilities. Don't overlook having students invite their parents to sample the products of their hard work. Make it a celebration!

Even though the garden may be organically grown, the vegetables still need to be washed before eating. Having a place outdoors to do the preliminary rinsing is very useful. Once indoors, wash again and then use clean cutting boards and knives, making sure that students have tied back their hair and washed their hands well before preparing the food from the garden. For tips on safe food handling visit <http://gov.ns.ca/agri/foodsafety/>

Nova Scotia Health Promoting Schools has a wonderful website with ideas of how to promote healthy food choices in schools. Garden vegetables should fit well into your school's healthy eating strategy. Check out the healthy menu items, made with locally grown produce. What could be more local grown than your school garden?

<http://nshps.ca/downloads/striveforfive>

A school garden can also help children learn about community support and food security by donating produce to your local food bank. The Plant a Row Grow a Row program is a Canadian network of gardening communities working with local food banks. Their bilingual website (<http://www.growarow.org>) has kid-friendly gardening tips, videos and resources. You can join the program to celebrate your part of a community success.

Select Nova Scotia has a website dedicated to connecting Nova Scotians with locally produced farm products. They have a great selection of recipes.
<http://www.selectnovascotia.ca>

Horticulture Nova Scotia's website has recipes and much more. Look for information about all kinds of vegetables. <http://hortns.com/>

Putting the Garden to Bed

At the end of the growing season, the garden should be prepared for winter.

Remove the remaining plant material to reduce the potential disease and insect problems next year. An outdoor compost bin is a good way to recycle the nutrients in the garden plants and learn about nutrient cycles.

Look for ways to cover the garden soil. You can use a layer of mulch which can be worked into the garden next spring, such as straw.

You may want to use a green cover on the garden to protect the soil and hold nutrients over the winter. A crop of fall rye or buckwheat planted in the fall will start growing right away and continue next spring. When ready to plant, it can be turned under to create a “green” fertilizer. The crop serves to capture nutrients as well as to prevent wind and water erosion in the garden during the winter.



APPENDIX A

Curriculum Connections

This section is intended to provide teachers with an initial means of utilizing the school garden as a teaching tool, recognizing that there are many more outcomes which can be linked to the school garden and an even greater potential for related activities to meet these outcomes. The following is a list of suggested activities, by grade and subject, to match specific outcomes taken from Learning Outcomes Framework: Primary-6 February 4, 2011. Where possible at least one outcome has been provided for each subject area for grades Primary-6.

Primary

Subject	Outcomes	Activity
English Language Arts	9. create texts collaboratively and independently, using a variety of forms for a range of audiences and purposes. – written lists	Visit the garden and identify different vegetables. Alternatively, look at pictures in a seed catalogue. Create a large list of vegetables in alphabetical order.
Health Education	1.5 use their senses to explore a variety of healthy foods	Observe garden plants. Examine the different shapes, colours and feel of the various parts of the plants. Which parts do we eat?
Mathematics	F1 collect and organize data about issues of personal interest F2 form and interpret “people” graphs	Using the list of garden vegetables, ask students which is their favourite. Ask students to line up in front of a picture of their favourite. How many students like each? Which is the most popular? Count the harvest. Count seeds to plant.
	F3 interpret and create real and picture graphs A9 determine which group has more, which has less/fewer, or whether groups are equivalent	Teacher introduces six vegetable choices for the garden. Ask students which they want to grow. Students vote by choosing a unifix cube (each vegetable is assigned a special coloured cube). Form a bar graph with the results. Discuss which colour/vegetable has the most, least, how many more than, how many fewer than.
Physical Education	Alternative Environments: 2.1 experience walking around the school observing landmarks and being conscious of litter and the environment	Observe the location of the garden in relation to other components of the schoolyard. Ask students to pick up as much litter as possible in a designated time and area (especially the area in and around the garden). What effect does the litter have on the garden and schoolyard?

Subject	Outcomes	Activity
Science	Unit: Exploring the World with Our Senses – Sight, Hearing, Smell, Taste, Touch, Observing Using More Than One Sense	Visit the garden and ask students to describe what they see, hear, smell, taste and touch. Create a list of their observations.
	Unit: Exploring the World of Living Things with Our Senses – Investigating Living Things Outdoors – Investigating Living Things in the Classroom	Visit the garden and ask students to point out living things. Look for insects, birds, animals and plants. Create a list of their observations. Discuss what might live underground. Dig a shovel of soil from the garden, take it into the classroom and place it on a large white tarp or in plastic containers. Examine the soil, looking for living things.
Visual Arts	6.1 explore the natural and built environment	Explore the school grounds. Ask students to find man-made and natural components. Visit the garden and discuss what parts of the garden are manmade and natural.

Grade One

Subject	Outcomes	Activity
English Language Arts	5. Interpret, select, and combine information using a variety of strategies, resources, and technologies. 5.1 engage in the research process with assistance	Using a variety of resources including seed catalogues engage students in research about the types of plants to be grown in the garden. Choose one vegetable type (e.g., carrot). Write what is already known about the vegetable. Identify questions to be researched. Observe and describe the characteristics of a plant growing in the garden (see Science on next page).
Health Education	1.5 categorize food into four food groups according to Canada's food guide, and explain how foods from these four groups can help us to grow, learn, be active, and stay healthy	Harvest vegetables such as carrots, cucumbers and green beans from the garden. Clean and prepare the vegetables for snacking. What nutrients are in each? What other nutrients do you require? Have students consider using what they have in the garden with the other food groups to plan a well rounded meal.
Mathematics	A6 count beyond 10 in a number of ways A7 estimate amounts between 10 and 100 F1 collect and organize data	Visit the garden. Estimate the number of different types of plants and/or vegetables: how many zucchini, tomato, cucumber, onion plants; how many zucchini, cucumbers, tomatoes on one plant? Weed one row! Estimate and then count the number of weeds in that row. Count and record the number of different types of plants, or vegetables on one plant, in the garden.
	F3 interpret and create pictographs and symbolic graphs	Use the data collected above. Create graphs using one sticker to represent one plant; use different colours for different types of vegetables. Draw pictures of cucumbers, zucchini, tomatoes etc. Create a pictograph using the pictures to illustrate the number of each on one plant.
Physical Education	Alternative Environments 2.6 experience walking as quietly as possible as a measure of sensitivity to the environment	Walk as quietly as possible around and through the garden, being aware to walk only on pathways in order not to harm garden plants. Listen to the sounds of the garden (rustling leaves, birds).

Subject	Outcomes	Activity
Science	Characteristics of Living Things (201-5) identify, conduct, measure, and record observations about animals and plants using appropriate terminology (201-5, 100-8, 203-2)	Observe a variety of plants in the garden. Identify and compare the stem, leaves, flowers, and roots of the different plants. Draw one or more types of plants and label the stem, leaves, roots, etc. Make a growth chart and colour in a green bar up to the height of the plant that day. Record the date beside the height.
	(203-5) listen and respond to another student's description of an animal or plant (203-4)	Observe a variety of plants in the garden. Have students describe what they see.
	(100-8) question, explore, observe, and identify the similarities and differences in how living things are able to meet their needs (200-1, 100-4, 100-5, 100-7)	Observe and compare a variety of plants in the garden. Describe the similarities and differences between different plants, and among similar plants in the garden.
Visual Arts	2.1 work individually and with others in the creative art-making process	Draw pictures of garden plants (see science). Place plants on large map of garden.
Social Studies	Outcome: 1.4.2 demonstrate an understanding of the factors that influence how needs and wants are met – recognize the need for people to co-operate with each other in their community to meet their various needs and wants – recognize the importance of volunteer work	Make a list of all the activities required to have a garden. Have students identify everyone who contributes to these jobs and who they are in the community.

Grade Two

Subject	Outcomes	Activity
English Language Arts	8.1 use writing and other forms of representation to <ul style="list-style-type: none"> – formulate questions – discover and express personal attitudes and opinions – express feelings and imaginative ideas – record experiences – record how and what they learn – generate and organize language and ideas 	Garden journal. Visit the garden weekly; experience it early in the morning, later in the day; on a sunny day, rainy day. Have students keep a journal of what they are doing in the garden, what they notice when they are there, what they like and don't like about being in the garden, what vegetables they like and don't like eating from the garden.
Health Education	2.5 examine Canada's food guide and demonstrate an understanding that foods within each of the four food groups provide different nutrients that help us grow, develop, learn, play, be active, and keep healthy	Make a list of the vegetables and/or fruits growing the garden. What nutrients can be found in each of them? What other nutrients do you require and what foods might you eat in order to get these nutrients? Have students consider using what they have in the garden with the other food groups to plan well rounded meals for a day.
Mathematics	D3 estimate and measure length in non-standard and standard units	Estimate the length and width of the garden, the width of rows and paths and the height of various plants. Estimate and measure using non-standard units such as a rake, a trowel, the student's stride (i.e., count steps). Estimate and measure using standard units such as a tape measure or ruler.
Physical Education	Basic Movement 1.5 demonstrate an understanding of the effect of physical activity on one's heart	Participate in garden activities such as carrying water, digging and raking. Discuss the physical effects on the body when exercising (e.g., red face, raised temperature, faster breathing). Find heart beat before and after the activity.
Science	Forms and Changes in Moisture – identify and measure evidence of moisture in the environment, in materials, and in living things (102-9, 201-3)	Set up a simple catch device to record the amount of rainfall in the garden. Record measurements throughout May and June.

Subject	Outcomes	Activity
Science	(103-7) describe the effects of weather and ways to protect things under different weather conditions	Research when the first frost of the year is likely to occur in your area. Set up a thermometer in the garden and record the temperature first thing each morning in Sept. and Oct. Gather materials such as old sheets, tarps, plastic and “floating row cover” to cover the plants when frost warnings are issued. Talk about how a greenhouse protects plants.
Visual Arts	2.1 work individually and with others in the creative art-making process	Make a scarecrow in the form of a robot, using materials from around the house.
Social Studies	2.4.3 demonstrate an understanding of sustainable development and its importance to our future (local, national, and global) plan, carry out, and evaluate a conservation activity	Compost plant material from garden. Apply a layer of mulch or plant a cover crop in the garden.

Grade Three

Subject	Outcomes	Activity
English Language Arts	<p>8.1 use writing and other forms of representation to</p> <ul style="list-style-type: none"> – formulate questions – generate and organize language and ideas – discover and express personal attitudes and opinions – express feelings and imaginative ideas – record experiences – explore how and what they learn <p>8.2 explore, with assistance, ways for making their own notes</p> <p>8.3 experiment with language choices in imaginative writing and other ways of representing</p>	Start transplants indoors by planting seeds. Write procedural texts to record the steps and create instructions on how to start transplants.
Health Education	3.4 demonstrate an understanding that the healthiest foods come from natural sources and differentiate between whole and processed foods	Activity: Harvest vegetables such as carrots, cucumbers and green beans from the garden. Clean and prepare the vegetables for snacking. Compare with a processed snack food. What nutrients are in each? Discuss what natural and man-made processes go into garden snacks vs. processed ones.
Mathematics	D2 estimate and measure capacity in millilitres and litres	Estimate the amount of potting soil needed to fill plant pots of various sizes. Using 250 ml, 500 ml and 1 l plastic containers, scoop soil into pots and record the capacity of the pot. Compare with estimate.
	F1 select appropriate strategies for collecting, recording, organizing and describing relevant data	Use the data from Science (starting transplants, see below). Tables, graphs and charts can be used to collect, record, organize and describe the data.

Subject	Outcomes	Activity
Physical Education	Basic Movement 1.1 demonstrate an understanding of safety rules in physical education classes	Develop and discuss safety rules in the garden: e.g., rakes should be tines down on the ground; watch out for others when using rakes, forks and spades; do not leave tools where others will trip over them, bend knees to lift heavy objects with legs and arms to protect back.
Science	Investigating Germination and Growing Conditions for Plants – place seeds in groups according to one or more attributes (202-2) – question and record relevant observations and measurements while investigating various growing conditions for plants (200-1, 201-5, 202-4)	Start transplants for school garden. – Read seed packets for “days to maturity” and decide which seeds should be started indoors. Using the seeds to be started, observe and compare the different kinds of seeds, noting size, shape, colour, thickness and appearance. Use a property chart to group. – Plant 1 seed per small container and label the containers. You will need at least 10 containers of the same variety. Discuss various growing conditions. Grow them under a variety of conditions: e.g., on a window sill and under a grow light; in a cool room, warm room; circulate air with a fan, or not; plant 2 or 4 seeds per container; water once a week, twice a week (use exactly the same amount of water each time). Record date of germination. Measure the height of plants at least twice a week.
	Water Absorption of Soils – describe, predict, and compare the absorption of water by different types of soil (100-38, 200-3) – communicate procedures and results of investigations related to water absorption of soils, using drawings, demonstrations, and/or written and oral descriptions (203-3)	In addition to the indoor activities described in the Curriculum Guide, students can study water absorption in the garden. When preparing the garden for planting, add organic matter to one seed bed and not to another (or use varying amounts); add sand or not; create raised beds and flat garden rows. Record observations of water absorption on the various seed beds. Does water stand after a rainfall, or drain away? Does the seed bed stay moist after a prolonged dry spell?
Visual Arts	1.2 use various materials and processes and explore their possibilities and limitations	Using seed catalogues, cut out pictures of vegetables and use them to create a collage. Draw leaf shapes.

Grade Four

Subject	Outcomes	Activity
English Language Arts	9. Students will be expected to create texts collaboratively and independently, using a wide variety of forms for a range of audiences and purposes.	Create a cookbook of recipes using garden vegetables for the school lunch program. Gather recipes by: a. choosing favorite from the Strive for 5 binder; b. asking grandparents for their favorite vegetable recipe.
Health Education	3.4 promote environmental awareness within the school community that demonstrates awareness of the connection between environment and health	Prepare posters showing how plants benefit the environment and post them around school.
Mathematics	A1 identify and model fractions and mixed numbers	Plan a pizza garden. List the vegetables to be grown for a pizza (e.g., onions, tomatoes, peppers, eggplant, garlic, basil, oregano). Each student can choose the vegetables to be grown. Divide a circle into fractions, with each section representing one type of vegetable.
	D1 recognize and demonstrate that objects of various shapes can have the same area D2 recognize and demonstrate that objects of the same area can have different perimeters	Plan a pizza garden as above. Determine how much of each vegetable is needed. Use a seed catalogue to determine the area needed to grow the desired quantity. Using graph paper, plan a garden of the required area in the shape of a square, rectangle, triangle, etc. Measure the perimeters of each.
	F1 recognize and use a variety of methods for the collection and organization of data	Use the data from Science (see below) to demonstrate a variety of methods for the collection and organization of data.
Physical Education	Alternative Environments 2.4 participate in a schoolyard clean-up program	Take responsibility for keeping the school garden area clean and tidy. Visit on a regular basis to pick up litter and to keep weeds under control.

Subject	Outcomes	Activity
Science	Life Science: Habitats – identify questions to investigate the types of plants and/or animals at a local habitat using the terms habitat, population, and community (104-6, 204-1) – identify their own and their families' impact on habitats and describe how personal actions help conserve habitats (108-3, 108-6)	Identify and describe the members of the garden habitat and the conditions under which they live. Research sunlight, temperature, spacing, water and nutrient requirements and compare what is required by each member. Have all requirements met, or what has been done to ensure that requirements have been met? What if nothing was done to the garden?
Visual Arts	1.3 use a combination of visual elements and principles of art and design in art making	Create wooden name stakes for the garden. Use paint to decorate wooden stakes with the name of a garden vegetable.

Grade Five

Subject	Outcomes	Activity
English Language Arts	8.1 Use a range of strategies in writing and other ways of representing to – describe feelings, reactions, values, and attitudes	Visit the garden and explore it using all senses. Write a poem to describe the experience.
Health Education	1.5 demonstrate an understanding of the basic nutrients found in food and the function they serve within the body	Research nutritional value of plants grown in your garden and what is required for a healthy body. Identify other plants you could grow, or other things to eat to satisfy needs.
Mathematics	F4 create and interpret line graphs	Create line graphs to interpret the data collected in the garden's weather station (see Science activity below).
Physical Education	Active Living 1.8 monitor nutritional intake and relate it to an active, healthy lifestyle	Analyze the healthy lunches served at school. How many servings from each food group are supplied by the different lunches? How many more servings should be consumed at home for a balanced diet, according to Canada's Food Guide? Keep a journal of physical activities for a week. How many minutes per week are students physically active, at home and at school?
Science	Measuring and Describing Weather – using correct names of weather instruments, construct and use instruments to record temperature, wind speed, wind direction, and precipitation (104-7, 204-8, 205-4, 205-10, 205-7.300-13)	Build or collect a rain gauge, anemometer, barometer and hygrometer. Set up a weather station in the garden. Record data from the instruments daily in May and June.
Visual Arts	1.2 develop ability and initiative in the use of techniques, technologies, materials and equipment	Explore the use of a camera. Observe plants in the garden. Use photography to record artistically the garden plants. Use a scanner to create images of vegetables and plants.
	4.2 identify similarities and differences in their own work and that of others	Display photographs (above) in an exhibit. Discuss differences and similarities among photographs.

Grade Six

Subject	Outcomes	Activity
English Language Arts	2. Students will be able to communicate information and ideas effectively and clearly, and to respond personally and critically.	Develop a series of questions and answers about the school garden. Record answers on index cards. Invite school visitors to tour the garden and ask questions. Respond to questions using prepared notes to inform visitors about the garden. Write about garden experiences and food experiences.
Health Education	1.8 assess total minutes of moderate and vigorous activity during school compared to after school and weekends	Categorize activity level of all jobs required in preparing, planting, harvesting and maintaining your garden and record the length of time for each. How does this activity compare to your regular school and home activity level?
Mathematics	D6 continue to solve measurement problems involving length, capacity, area, volume, mass and time	Students create garden plans. Using seed catalogues, determine which vegetables to plant. Decide how much of each vegetable is wanted, and then the length of row and number of seeds required. How much space does each require? Draw several plans to fit the vegetables, using different shapes for the garden plot. Using results from the soil tests, determine the amount of nutrients needed to augment the soil in gardens of different sizes.
Physical Education	Active Living 1.3 perform activity-specific stretching 1.5 participate in games, sports, dance and outdoor pursuits, both in and outside school, based on individual interests and capabilities 1.7 select activities designed to improve and maintain muscular strength and endurance, flexibility, and cardiorespiratory functioning	Use a variety of tools to work in the garden: dig, rake, shovel organic materials, fill and carry watering cans, hoe weeds. Identify the muscles used with each tool. Develop a stretching program specific to garden work. Perform each garden activity at different levels of effort. Take pulse before and after each activity; discuss recovery rates and resting heart rates. Identify how long they can work at various levels of effort (endurance).

Subject	Outcomes	Activity
Science	Adaptations and Natural Selection propose questions and gather information about the relationship among the structural features of plants and animals in their environments and identify the positive and negative impacts of humans on these resources (204-1, 108-8)	Visit the garden in September, assigning a group of students to each type of vegetable. Search the plants for worms and insects. Use hand-held magnifiers to observe the animal, and identify its structural features. Observe the host plant and describe/draw its structural features. How do the structural features of the animal help it to survive on its host plant? Research the effects of the animal pest on the plant, and the controls humans use to control it.
Visual Arts	1.1 express through art making an awareness of the complexities of the world and their role in it.	Observe plants in the garden. Use coloured clay to model a variety of vegetables.
Social Studies	6.2.1 compare climate and vegetation in different types of physical regions of the world	Determine the regional origins of the plants in your garden. How is the climate in the plants place of origin similar to, or different from the climate in Nova Scotia?

APPENDIX B

School Garden Resources

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1) Resource Contacts

Nova Scotia Department of Agriculture

Judy Grant, Agricultural Education
Coordinator – phone: 902-893-6585
Rick Hoeg, Agricultural Education Liaison –
phone: 902- 893-7495
fax: 902- 893-0244
176 College Road, Truro, NS, B2N 5E3
<http://gov.ns.ca/agri/>

Nova Scotia Department of Agriculture Regional Offices

<http://gov.ns.ca/agri/contactus/rep/>
Cape Breton phone: 902-563-2000
Eastern phone: 902-863-7500
Central phone: 902-893-3645
Valley phone: 902-679-6006
Western phone: 902-638-2396

Nova Scotia Agricultural College

Lloyd Mapplebeck, Associate Professor, Plant
& Animal Sciences Department, teaching
courses in greenhouse, nursery and specialty
crops and also native plants and non timber
forest products, NSAC, Truro, NS.,
lmapplebeck@nsac.ca,
phone: 902-893-6683

Dr. Norman Goodyear, Associate Professor,
teaching courses in plant science, organic
horticulture and horticultural therapy, NSAC,
Truro, NS., ngoodyear@nsac.ca
phone: 902-893-6366

Carol Goodwin, Associate Professor,
Department of Environmental Sciences,
teaching courses in arboriculture, landscape
management, garden history and design, and
plant identification, NSAC, Truro, NS.,
cgoodwin@nsac.ca
phone: 902-893-6673

AgraPoint

Agricultural specialists, publications,
guides, newsletters, events and links.
<http://extensioncentral.com>

Atlantic Master Gardeners Association An
independent, non-profit organization that
works in conjunction with the Nova Scotia
Agricultural College to bring keen gardeners
and an eager public together. Their mission is
to serve in an educational role to help others
learn to enjoy horticulture.
<http://atlanticmastergardeners.com/>
e-mail: cgoodwin@nsac.ca

Organic Agriculture Centre of Canada

Nova Scotia Agricultural College
PO Box 550, Truro, NS B2N 5E3
phone: 902-893-7256
fax: 902-896-7095
e-mail: oacc@nsac.ca
www.oacc.info

Nova Scotia Association of Garden Clubs

(NSAGC) is the coordinating body for
organized gardening groups in the province.
<http://nsagc.com/>

Atlantic Canadian Organic Regional Network (ACORN)

The key organization for information on
organic agriculture, eating organics, and
connecting all the parts together.
Beth McMahon, ACORN Executive Director
PO Box 6343, 43 Main Street
Sackville, NB, E4L 1G6
phone: 506-536-2867
toll-free: 1-866-32 ACORN (22676)
fax: 506-536-0221
e-mail: admin@acornorganic.org
<http://www.acornorganic.org/>

Nova Scotia Organic Growers Association

Contact: Angela Patterson
phone: 902-582-1363
e-mail: jangela@angelhoeve.ca
<http://www.nsoga.org>

3) General Gardening Information Websites

Frost Free Periods for Canadian Cities

Determine the time available for growing your garden from The Old Farmer's Almanac Frost Chart for Canada produced from Environment Canada weather data.

<http://www.almanac.com/content/frost-chart-canada>

Plant Hardiness Zones in Canada, AAFC

<http://sis.agr.gc.ca/cansis/nsdb/climate/hardiness/>

Canadian Soil information Service, AAFC -

<http://sis.agr.gc.ca/cansis/>

Montreal Botanical Garden

<http://www2.ville.montreal.qc.ca/jardin/en/menu.htm>

Arizona Master Gardener Manual

Intensive Gardening Methods:

<http://ag.arizona.edu/pubs/garden/mg/vegetable/intensive.html>

AgraPoint: Extension Central

Online production guides for some vegetable crops.

<http://www.agrapoint.ca/>

Online Weed Guides/Information

<http://www.gov.ns.ca/agri/rir/weedid/>

<http://www.weedinfo.ca/>

Garden Organic

Researching and promoting organic gardening, farming and food.

<http://www.gardenorganic.org.uk/>

4) Seed Suppliers and Other Garden Supplies

Halifax Seed Company

5860 Kane Street, PO Box 8026 Stn A

Halifax, NS, B3K 5L8

info@halifaxseed.ca

phone: 902-454-7456; fax: 902-455-5271

<https://www.halifaxseed.ca/>

Veseys

PO Box 9000, Charlottetown, PEI, C1A 8K6

1-800-363-7333 (toll-free)

<http://www.veseys.com/> (Look under the Learn tab for lots of good information, including the Vegetable Planting Chart)

Hope Seeds

6473 Hwy 1, Granville Ferry, NS, B0S 1K0

phone: 902-665-4905; fax: 902-665-4179; e-

mail: hopeseed@xplornet.com

<http://www.hopeseed.com>

McKenzie Seeds

<http://www.mckenzienseeds.com/>

Stokes

PO Box 10, Thorold, ON, L2V 5E9 phone: 1-905-688-4300

<http://www.stokeseeds.com/>

OSC (Ontario Seed Company)

PO Box 7, Waterloo ON, N2J 3Z6

phone: 519-886-0557, Fax: 519-886-0605

<http://www.oscseeds.com/>

Lee Valley

100 Susie Lake Crescent,

Bayers Lake Business Park, Halifax, NS

phone: (902) 450-1221

fax: (902) 450-1331

Toll-free customer service: 1-800-267-8761

<http://www.leevalley.com>

customerservice@leevalley.com

2) School Garden Information Websites

Setting Up and Running a School Garden

A manual for teachers, parents and communities. From the Food and Agriculture Organization of the United Nations – can be found in the Corporate Document Repository at <http://www.fao.org/documents/>

Ecology Action Centre Urban Garden Project

2705 Fern Lane
Halifax, Nova Scotia, B3K 4L3
phone: (902) 429-2202
fax: (902) 405-3716
e-mail: info@ecologyaction.ca
<http://www.ecologyaction.ca/content/urban-garden-project>

Halifax Urban Garden Network

Urban garden online network for gardeners and citizens of the HRM
email: info@halifaxgardennetwork.com
<http://www.halifaxgardennetwork.com/>

Nova Scotia Environmental Network

Province-wide environmental network, with a caucus on sustainability education and school gardens.
<http://www.nsen.ca/>

Plant a Row Grow a Row

Provides simple, kid friendly, online gardening advice and encourages our communities to plant, grow and harvest an extra row of specific vegetables for local food banks and soup kitchens. <http://www.growarow.org/>

BC Agriculture in the Classroom Program

Spuds in Tubs Program:
<http://www.aitc.ca/bc/>

School Garden Wizard

A guide created for America's K-12 school community through a partnership between the United States Botanic Garden and Chicago Botanic Garden.
<http://www.schoolgardenwizard.org/>

The Edible Schoolyard (ESY), established in 1995, is a one-acre garden and kitchen classroom at Martin Luther King, Jr. Middle School in Berkeley, California.
<http://www.edibleschoolyard.org/>

National Gardening Association, US

A comprehensive guide to starting a school garden.
<http://www.kidsgardening.org>

Urban Agricultural Notes (City Farmer)

School Gardens:
<http://www.cityfarmer.org/schgard15.html>

Organic Agriculture Centre of Canada Kids links

http://www.organicagcentre.ca/Kids/kids_welcome.asp

Square Foot Gardening for Teachers

<http://www.squarefootgardening.com/>

Aggie Horticulture, Department of Horticultural Science, Texas A&M University
Tips on nutrition, composting and starting school and community gardens
<http://aggie-horticulture.tamu.edu/kindergarden/>

Greenheart Education. The value of school gardens, history, benefit and some how-to information.
<http://www.greenhearted.org/school-gardens.html>

Food Share Toronto

Community garden manual available for purchase.
<http://foodshare.net/garden03.htm>

American Community Gardening Association

Comprehensive resources on development of community gardens.
<http://communitygarden.org/learn/starting-a-community-garden.php>

5) Soil Testing

Soil Contaminant Testing:

AGAT Labs

11 Morris Drive, Unit 22, Dartmouth, NS
B3B 1M2
Tel: 902-468-8718
Toll-free: 1-888-468-8718
<http://www.agatlabs.com>

Maxxam Labs

Burnside Industrial Park
900 Windmill Rd., Unit #10, Dartmouth, NS
B3B 1P7
Tel: 902-444-3315
<http://maxxam.ca/>

Soil Nutrient Testing:

Nova Scotia Department of Agriculture,

Laboratory Services
176 College Road,
Harlow Institute, Truro, NS
B2N 2P3
Tel: 902-893-7444
<http://gov.ns.ca/agri/>

6) Funding For School And Community Gardens

Nova Scotia Department of Agriculture School Garden Project Funding

Providing a limited number of developmental support grants of up to \$500 for eligible expenses towards school garden projects across Nova Scotia. All grade levels of school are eligible to apply.

Agricultural Education Liaison
Nova Scotia Department of Agriculture
phone: (902)893-7495
fax: (902)893-0244
email: hoegr1@gov.ns.ca

Farm Credit Canada – AgriSpirit Fund

The Fund is about making life better for people in rural communities. Past projects have included hospitals and medical centres, childcare facilities, fire and rescue equipment, playgrounds, food banks, libraries, recreation centres and community gardens.

<http://www.fcc-fac.ca/en/>

(Look under [About Us](#), [Corporate Responsibility](#))

The Evergreen Foundation

Providing funding and facilitation of local, sustainable greening projects in schoolyards, parks and communities across Canada. \$500 – \$3500 grants available to schools.

<http://www.evergreen.ca/>

(Look under [Funding](#))

Hellman’s Real Food Grant Program

Has provided grants for projects promoting real food. Check site for future announcements.

<http://www.realfoodmovement.ca/>

(Look under [Get Involved](#) tab)

The Nova Scotia Public Interest Research Group

Grants up to \$500, offered four times a year for projects that further the organization’s mandate.

<http://www.nspirg.org>

Nova Scotia Go for Green Fund

Provides fiscal support to provincial, municipal and community initiatives that support and encourage Nova Scotians to engage in responsible, active and healthy outdoor physical activities that foster environmental stewardship and/or directly enhance the environment.

<http://www.coastalcommunities.ns.ca/>

IWK Community Grants Program:

The IWK Community Grants Program helps to fund projects dedicated to promoting wellness and healthy living among women, children and youth in Nova Scotia, New Brunswick and Prince Edward Island.

<http://www.iwk.nshealth.ca/>

(Look under Healthy Families, IWK Community)

Community Health Board grants:

The Department of Health and Wellness provides grant funding to Community Health Boards through District Health Authorities and Community Health Boards. Check with the health board in your community for more details.

<http://www.gov.ns.ca/health/about/DhA.asp>

ACTIVE Halifax Communities

Funds in support of local groups and organizations to increase the number of people getting active in the Halifax Regional Municipality. This program is meant to foster the capacity of communities in the Halifax Regional Municipality to address physical inactivity of children, youth and their families and work together to build vibrant, healthy communities.

<http://www.halifax.ca/activehalifax/>

Halifax Foundation

An independent non-profit organization with a mandate to support existing and new endeavours in arts and culture, education, environment, health, heritage, recreation and social response that enhance public places, facilities and public services in the Halifax Regional Municipality.

<http://www.halifax.ca/foundation/>

(Look under Grants)

Youth Conservation Corps

<http://gov.ns.ca/nse/youth/>

Community Partners cost share wages with the NSYCC to provide youth in their area with valuable work experience while completing a project that benefits the entire community and environment.

EcoAction Community Funding Program

Environment Canada's EcoAction Community Funding Program provides financial support to community-based, non-profit organizations for projects that have measurable, positive impacts on the environment.

<http://www.ec.gc.ca/ecoaction/>

TD Friends of the Environment Program:

TD Friends of the Environment Foundation provides environment funding for not-for-profit organizations across Canada.

<http://www.fef.td.com/>

MEC Urban Sustainability Grants

Urban Sustainability Grants, from \$500 to \$2,000, to support local environmental groups in each MEC store community.

<http://www.mec.ca/>

(Look under Sustainability, Community Contributions, Urban Sustainability)

7) Training Opportunities

NSAC Continuing and Distance Education

Provide a series of practical workshops on basic gardening techniques

<http://nsac.ca/cde/courses/>

Master Gardeners Training

<http://nsac.ca/cde/courses/DE/Master-Gardener/>

Ecology Action Centre Urban Garden Project

2705 Fern Lane

Halifax, Nova Scotia, B3K 4L3

phone: (902) 429-2202, fax: (902) 405-3716,

e-mail: info@ecologyaction.ca

<http://www.ecologyaction.ca/content/urban-garden-project>

Pollination Project

Workshops, seminars and residential fellowships, to explore connections between healthy food, artistic expression, mindful practices and just society.

768 Allen Frausel Road, Baker Settlement, NS, B4V 7H8

Phone: 902-624-1979

e-mail: camellia@pollinationproject.org or

peter@pollinationproject.org

<http://www.pollinationproject.org/>

8) Eating Local & Healthy

Select Nova Scotia

<http://www.selectnovascotia.ca/>

Nova Scotia Federation of Agriculture Food Miles Project

<http://www.nsfa-fane.ca/food-miles-project>

Meet Your Farmer

<http://meetyourfarmer.ca/>

Slow Food Nova Scotia

<http://slowfoodns.blogspot.com/>

Slow Food Nova Scotia exists to honour the tradition of experiencing the taste of local food in a social and convivial atmosphere through excursions to farms, special dinners, tastings and public projects.

Slow Food Canada

<http://www.slowfood.ca>

Co-op Eat Atlantic Challenge

<http://www.eatatatlantic.ca>

Falls Brook Centre – Food Miles Module

New Brunswick Teachers Resource kit (K-8)

<http://www.fallsbrookcentre.ca/foodmiles/>

Health Promoting Schools

Nova Scotia Health Promoting Schools encourage children and young people to eat well and to exercise; promoting the physical, social, spiritual, mental and emotional well-being of all students and staff.

<http://nshps.ca/>

Nova Scotia Department of Health and Wellness

<http://www.gov.ns.ca/hpp/>

Goodness in Many Ways

This is a social marketing campaign focused on supporting those who are not currently eating the recommended amounts of vegetables and fruit. It is about raising awareness and supporting positive change in eating habits, no matter how small. Goodness in many ways is also focused on supporting increased capacity building, and skills building for preparation of vegetables and fruit among Nova Scotians.

<http://freshcannedfrozen.com/>

(Look under [Resources](#), [Useful Tools](#))

**The Stop Community Food Centre:
Toronto**

Strives to increase access to healthy food in a manner that maintains dignity, builds community and challenges inequality. Their website has comprehensive information about food security, the organization itself, events, etc. <http://www.thestop.org/mission>

LifeCycles

This Victoria organization is predominantly youth driven and is geared towards education and building community connections through hands-on projects that work towards creating better local and global food security. <http://lifecyclesproject.ca/initiatives>

9) Nova Scotia School & Community Garden Locations

Please contact the Agricultural Education office or check our website for our most up-to-date list of school gardens.